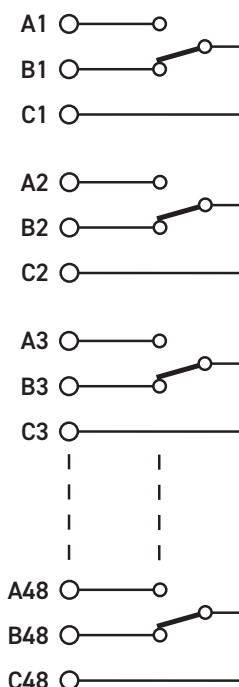- 48 Changeover Contacts in One 6 U PXI Module
- Current Handling of 7.5 A Per Contact
- Hot Switch to 300 VDC/240 VAC, Cold Switch to 400 VDC/240 VAC
- Suitable for Switching Resistive and Inductive Loads
- Uses Electro-mechanical Relays With Gold Plated Silver Alloy Contacts
- VISA and Kernel Drivers Supplied for Windows
- 3 Year Warranty

The 45-157 SPDT Power Relay Module consists of 48 single pole changeover relays controlled by a PXI/CompactPCI interface. It is suitable for applications were conventional reed-relay based switching modules don't have sufficient voltage rating or current carrying capacity. All 48 contacts are electrically isolated from each other and are capable of switching resistive and inductive loads up to 1800 VA at 240 VAC.

The module is in single width 6 U PXI format and the interface is via a standard PXI/CompactPCI backplane. Connection to the switching contacts is via three 50-pin D-type male connectors mounted on the front panel. These are machined contact types with 7.5 A current carrying capacity.

Applications for the 45-157 include routing power to the device under test or for selecting high power loads. It can also be used for switching large external devices such as lamps and solenoids or controlling larger relays and contactors.

Switching Diagram for the 45-157 48xSPDT Power Relay Module

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Relay Type

The 45-157 is fitted with electro-mechanical relays. A spare relay is built onto the circuit board to allow easy maintenance with minimum downtime.

Switching Specification

Contact Type:	Gold plated silver alloy
Cold Switching Capacity	
Maximum Current:	7.5 A
Maximum Voltage:	400 VDC/240 VAC*
Hot Switching Capacity	
Maximum Current:	7.5 A
Maximum Voltage:	300 VDC/240 VAC*
Maximum Power:†	240 W/1800 VA
Minimum Switching Capacity:	10 mA, 5 VDC
Initial On Path Resistance:	<50 mΩ typical, 100 mΩ maximum
Off Path Resistance:	>10^9 Ω
Bandwidth:	>20 MHz
Operate Time:	10 ms typical
Expected Life (operations)	
Mechanical Life:	>30×10^6
At Max Hot Switch Capacity:	>1×10^5

* For full voltage rating, signal sources to be switched must be fully isolated from mains supply and safety earth.

† For variation of maximum hot switching capacity of voltage with current refer to plot.

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
0	160 mA	1 A	0

Mechanical Characteristics

Single slot 6 U PXI (CompactPCI) module.
3D models for all versions in a variety of popular file formats are available on request.
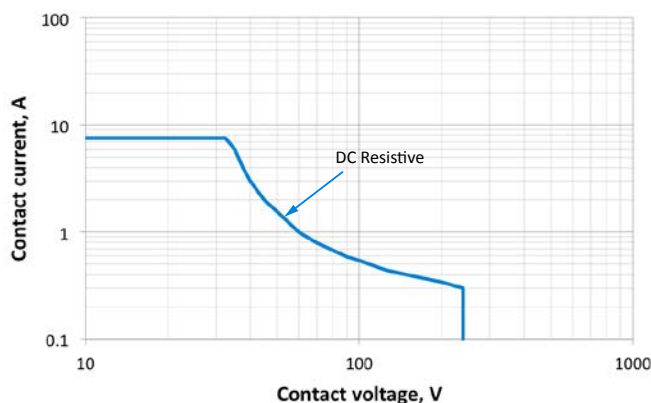
Connectors

PXI bus via 32-bit P1/J1 backplane connector.
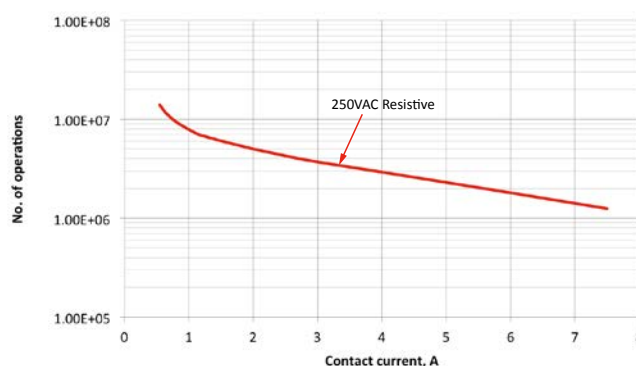Signals via 3 front panel 50-pin male D-type connectors (machined contact for 7.5 A current handling).

For pin outs please refer to the operating manual.

Chassis Compatibility

Pickering 6 U PXI modules will operate in any 6 U PXI chassis, in addition they will also operate (with 100 % compatibillity) in any 6 U CompactPCI chassis.

45-157 Current/Voltage Curve

45-157 Current/Operating Life Curve

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented.

Uses a 33 MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2010, EMC Immunity EN61326-1:2013, Emissions EN55011:2009+A1:2010.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0 °C to +55 °C
Humidity:	Up to 90 % non-condensing
Altitude:	5000 m

Storage and Transport Conditions

Storage Temperature:	-20 °C to +75 °C
Humidity:	Up to 90 % non-condensing
Altitude:	15000 m

Product Order Codes

6 U PXI 48xSPDT Power Relay Module   45-157-001

Product Customization

Pickering modules are designed and manufactured on our own flexible manufacturing lines, giving complete product control and enabling simple customization to meet very specific requirements.

Customization can include:

- Alternative relay types
- Mixture of relay types
- Alternative number of relays
- Different performance specifications

All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

Mating Connectors & Cabling

For connection accessories for the 45-157 module please refer to the 90-005D 50-pin D-type Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.
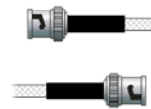
Connectivity Solutions

We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules.

Connectors & Backshells

Multiway Cable Assemblies

RF Cable Assemblies

Connector Blocks

We also offer customized cabling and have a free online **Cable Design Tool** that can be used to create custom cable solutions for many applications. Visit: pickeringtest.com/cdt to start your design.

Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for a PXI or LXI based test system. Our modules are fully supported by both Virginia Panel and MacPanel.

Pickering Reed Relays

We are the only switch provider with in-house reed relay manufacturing capability via our Relay Division. These instrument grade reed relays feature **SoftCenter™** technology, ensuring long service life and repeatable contact performance.

To learn more, please go to: pickeringrelay.com

Programming

Pickering provide kernel, IVI and VISA (NI & Keysight) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. For a list of all supporting operating systems, please see: pickeringtest.com/os

The VISA driver is also compatible with Real-Time Operating Systems such as LabVIEW RT. For other RTOS support contact Pickering. These drivers may be used with a variety of programming environments and applications including:

- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
- **MTQ Testsolutions** Tecap Test & Measurement Suite

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries.
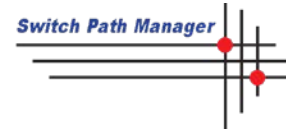
We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

To learn more about software drivers and development environments, please go to: pickeringtest.com/software

Signal Routing Software

Our signal routing software, Switch Path Manager, automatically selects and energizes switch paths through Pickering switching systems. Signal routing is performed by simply defining test system endpoints to be connected together, greatly accelerating Test System software development.
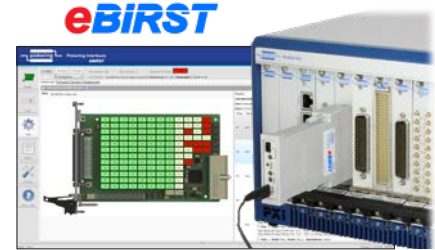
To learn more, please go to: pickeringtest.com/spm

Diagnostic Relay Test Tools

eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

To learn more, please go to: pickeringtest.com/ebirst

Three Year Warranty & Guaranteed Long-Term Support

All standard products manufactured by Pickering Interfaces are warranted against defective materials and workmanship for a period of three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available for all our modules and systems with various levels to suit your requirements. Although we offer a 3-year warranty as standard, we also include guaranteed long-term support—with a history of supporting our products for typically 15-20 years. To learn more, please go to: pickeringtest.com/support

Available Product Resources

We have a large library of product resources including success stories, product and support videos, articles and white papers as well as application specific product brochures to assist when looking for the switching, simulation and connection solutions you need. We have also published handy reference books on Switching Technology and for the PXI and LXI standards.

To view, download or request any of our product resources, please visit: pickeringtest.com/resources

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